

Appln. No. 10/707,711  
Docket No. 140021 / GEM-0094

## **REMARKS / ARGUMENTS**

### **Status of Claims**

Claims 1-24 are pending in the application and stand rejected. Applicant has canceled Claim 3 and has amended Claim 1 to include all of the limitations of Claim 3, leaving Claims 1, 2 and 4-24 for consideration upon entry of the present Amendment.

Applicant respectfully submits that the rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) have been traversed, that no new matter has been entered, and that the application is in condition for allowance.

These amendments and accompanying remarks were not presented earlier because Applicant did not fully appreciate the nature of the Examiner's position until the Applicant was advised in more detail of the position by the final rejection, which introduced the Ono et al. reference. The claim amendments presented herein, which Applicant respectfully requests entry thereof, should require only a cursory review by the Examiner as they include only elements presented in earlier examined claims. Accordingly, such amendments should not require further consideration or search.

### **Rejections Under 35 U.S.C. §102(b)**

Claims 1-20 and 24 stand rejected under 35 U.S.C. §102(b) as being anticipated by Ono et al. (U.S. Patent No. 5,581,223, hereinafter Ono).

Applicant traverses these rejections for the following reasons.

Applicant respectfully submits that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, *in a single prior art reference.*" *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). Moreover, "[t]he identical invention must be shown in as complete detail as is contained in the \*\*\* claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Furthermore, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d

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707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. Titanium Metals Corp. v. Banner, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Regarding Claims 1-11

Applicant has canceled Claim 3 and has amended Claim 1 to include all of the limitations of Claim 3, such that Claim 1 now recites, inter alia,

***"A magnetic field generator... comprising... electronics... wherein the electronics are located in the at least one low fringe field region when the magnetic field generator is in operation."***

Support for the claim amendment may be found in the specification as originally filed, such as at originally filed Claim 3 for example. No new matter has been added.

Dependent claims inherit all of the limitations of the parent claim.

At Paragraph [0019] and Figure 1, Applicant describes and illustrates the magnet assembly (magnetic field generator) 52 having electronics 76 within an electronics housing 74 that may be used to operate the MRI system. Amended Claim 1 is now directed to this structure.

In alleging anticipation, the Examiner references Ono at column 7, lines 1-14, and remarks that Ono discloses electronics that may be safely placed at 2.06 meters from the center of the FOV. Paper 20050505, page 2.

At column 7, lines 1-14, Applicant finds Ono to disclose "...a computer or other equipment may be positioned outside the five gauss line 7D, being free from the effect of leakage flux."

In comparing Ono to amended Claim 1, Applicant submits that Ono does not disclose a magnetic field generator 52 having electronics 76, but merely discloses the possibility of a computer being positioned somewhere outside the five gauss line.

In the instant claimed invention, the electronics 76 are part of the magnetic field generator 52, which is not disclosed in Ono.

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Regarding Claim 2 Specifically

The Examiner alleges that Ono anticipates Claim 2. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

"The magnetic field generator of claim 1 further comprising *negative coils* to help shape magnetic field in the imaging volume."

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Regarding Claim 4 Specifically

The Examiner alleges that Ono anticipates Claim 4. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

"...*a gradient amplifier unit;*  
*an RF amplifier unit;*  
*a system controller; and*  
*a magnet monitor unit.*"

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Regarding Claim 9 Specifically

The Examiner alleges that Ono anticipates Claim 9. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

"...wherein the at least one low fringe field region comprises *a toroidal volume around the housing.*"

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

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Regarding Claim 10 Specifically

The Examiner alleges that Ono anticipates Claim 10. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

*"...wherein the electronics occupies a toroidal volume around the housing."*

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Regarding Claims 12-20

The Examiner alleges that Ono anticipates Claims 12-20. Paper 20050505, page 2.

Applicant respectfully disagrees.

In alleging anticipation, the Examiner does not show with specificity where Ono discloses:

*"A magnetic resonance imaging system comprising...*

*electronics for operating the magnetic resonance imaging system, the electronics located radially outward of the housing and proximal to the housing..."*

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Dependent claims inherit all of the limitations of the parent claim.

Regarding Claim 14 Specifically

The Examiner alleges that Ono anticipates Claim 14. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

*"...a gradient amplifier unit;*

*an RF amplifier unit;*

*a system controller; and*

*a magnet monitor unit."*

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In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Regarding Claim 18 Specifically

The Examiner alleges that Ono anticipates Claim 18. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

"...wherein at least one low fringe field region comprises *a toroidal volume around the housing.*"

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Regarding Claim 19 Specifically

The Examiner alleges that Ono anticipates Claim 19. Paper 20050505, page 2.

However, in making such an allegation, the Examiner does not show with specificity where Ono discloses:

"...wherein *the electronics occupies a toroidal volume around the housing.*"

In alleging anticipation, the Examiner must show where Ono discloses each and every element of the claimed invention arranged as claimed, which Applicant respectfully submits the Examiner has failed to do.

Absent anticipatory disclosure in Ono of *each and every element* of the claimed invention *arranged as in the claim*, Ono cannot be anticipatory.

By alleging anticipation absent specific reference to anticipatory elements that may be found in Ono, Applicant respectfully submits that the Examiner has failed to properly meet the burden of a showing of anticipation.

In view of the foregoing, Applicant submits that Ono does not disclose each and every element of the claimed invention arranged as claimed, and therefore cannot be anticipatory. Accordingly, Applicant respectfully submits that the Examiner's rejections



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under 35 U.S.C. §102(b) have been traversed, and requests that the Examiner reconsider and withdraw these rejections.

**Rejections Under 35 U.S.C. §103(a)**

Claims 21-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ono as applied to Claim 1 above, and further in view of Crozier et al. (U.S. Patent No. 5,818,319, hereinafter Crozier).

The Examiner acknowledges that Ono does not disclose the use of computerized optimization for determining coil positions for his magnet arrangement, and looks to Crozier to cure this deficiency. Paper 20050505, page 3.

Applicant traverses this rejection for the following reasons.

Applicant respectfully submits that the obviousness rejection based on the References is improper as the References fail to teach or suggest each and every element of the instant invention. For an obviousness rejection to be proper, the Examiner must meet the burden of establishing a prima facie case of obviousness. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). The Examiner must meet the burden of establishing that all elements of the invention are taught or suggested in the prior art. MPEP §2143.03.

Independent Claims 21 and 23 recite, inter alia,

“...defining fringe field requirements such that the low fringe field region is produced at a distance less than 2.5 meters radially from the center of the field of view and has a magnetic field strength that is low enough *so as to not harm the electronics*; and

running an optimization algorithm *to determine coil positions*.”

Dependent claims inherit all of the limitations of the parent claim.

In alleging obviousness, the Examiner references Crozier at Example 1, column 12, at columns 6-12 generally, and at the third paragraph of column 9 more specifically.

At Example 1, column 12, Applicant finds Crozier to teach “*simulated annealing procedures*”. (Line 64).

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At Example 1, column 13, Applicant finds Crozier to teach a "final magnet design... [having a] *large number of coils* [that] were a result of the *simulated annealing procedure* and were not designated beforehand." (Lines 13-18).

At column 6, Applicant finds Crozier to teach "the method aspects of the present invention relate to the use of an improved *simulated annealing procedure* to design magnets for magnetic resonance systems." (Lines 23-26).

At column 9, Applicant finds Crozier to teach "Once the schedule and parameters are selected, the *simulated annealing* is performed until the system becomes 'frozen'..." (Lines 48-53).

At column 9, third paragraph, Applicant finds Crozier to teach "*the initial guess is used* to calculate the fields outside of the magnet *to determine the level of shielding provided* by any shielding magnets included in the overall design." (Lines 20-23).

At column 10, Applicant finds Crozier to teach "Fig. 4 illustrates a preferred procedure for performing the *simulated annealing optimization*." (Lines 1-2).

In considering the teaching of Crozier as referenced, Applicant submits that while Crozier may teach *a simulated annealing procedure that also calculates a level of shielding provided*, Applicant finds no teaching of performing the simulated annealing procedure for the purpose of producing a low fringe field region that has a magnetic field strength low enough *so as to not harm the electronics*, which is specifically claimed for in the instant invention.

In fact, and contrary to the claimed invention, Applicant finds Crozier to teach "*the development of short, yet homogenous, whole body magnets* for use in magnetic resonance imaging (MRI)." (Abstract).

In Crozier, Applicant finds no teaching of the problem associated with the use of electronics operating within a high field region, nor a teaching of a solution to that problem.

It is only in the instant application that one skilled in the art is taught of the problem associated with the use of electronics operating within a high field region, and a

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solution to that problem, thereby resulting in the advantage (also not taught in Crozier) of having electronics mounted directly to the housing of the magnetic field generator.

In view of the foregoing, Applicant submits that the References fail to teach or suggest each and every element of the claimed invention and are therefore wholly inadequate in their teaching of the claimed invention as a whole, fail to motivate one skilled in the art to do what the patent Applicant has done, fail to recognize a problem recognized and solved only by the present invention, fail to offer any reasonable expectation of success in combining the References to perform as the claimed invention performs, and discloses a substantially different invention from the claimed invention, and therefore cannot properly be used to establish a prima facie case of obviousness. Accordingly, Applicant respectfully requests reconsideration and withdrawal of all rejections under 35 U.S.C. §103(a), which Applicant considers to be traversed.

Applicant has amended the claims for presentation in better form for consideration on appeal, and to more clearly reflect Applicant's invention. The claim amendments should only require a cursory review by the Examiner as they only include language presented in earlier examined claims. Accordingly, such amendments should not require further consideration or search.

In light of the foregoing remarks and amendments, Applicant respectfully submits that the proposed amendments and arguments comply with 37 C.F.R. §1.116 and should therefore be entered, and with their entry that the Examiner's rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) have been traversed, and that the application is now in condition for allowance. Such action is therefore respectfully requested.



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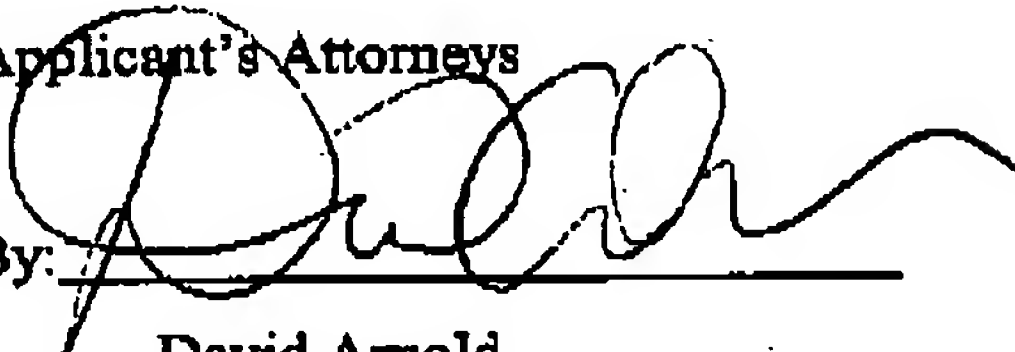
The Commissioner is hereby authorized to charge any additional fees that may be required for this amendment, or credit any overpayment, to Deposit Account No. 07-0845.

In the event that an extension of time is required, or may be required in addition to that requested in a petition for extension of time, the Commissioner is requested to grant a petition for that extension of time that is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above identified Deposit Account.

Respectfully submitted,

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